

## Product Change Notice (PCN)

**Subject:** Assembly & sorting factory addition, assembly materials change and wafer process factory addition for RL78 family QFN package products

**Publication Date:** 6/29/2022

**Effective Date:** 11/1/2022

### Revision Description:

Initial release.

### Target package

4x4mm 0.5mm pitch 24pin HWQFN

5x5mm 0.5mm pitch 32pin HWQFN

### Description of Change:

#### 1) Assembly factory

Existing factory: Greatek Electronics Inc. (Greatek)

Additional factory: UTAC Thai Limited (UTAC)

#### 2) Sorting factory addition:

Existing factory: King Yuan Electronics Co., Ltd (KYTEC) or Greatek Electronics Inc. (Greatek)

Additional factory: UTAC Thai Limited (UTAC)

#### 3) Wafer process

Existing factory: Renesas Semiconductor Manufacturing Kawashiri

Additional factory: Renesas Semiconductor Manufacturing Saijo

#### 4) Material: Standard materials are used in new factory

Lead frame, Die mount material and Mold resin material

#### 5) Package outline:

There is no change in foot pattern with additional packages.

Please refer to the package outline drawing for the dimensions.

#### 6) Marking

The font is changed.

#### 7) Packing material:

With the addition of factory, packing materials will also be added.

The packing material used certificated materials.

#### 8) Storage condition after opening:

There is no change.

: Within 30 °C/ 60%RH/ 168h (JEDEC compliant).

**Affected Product List:**

Please refer to Attachment: PN\_list\_RL78\_QFN\_in.

**Reason for Change:**

Stable supply for RL78 series QFN products.

**Impact on Fit, Function, Quality & Reliability:**

No impact.

**Product Identification:**

Possible to confirm the production history data from the packing label or trace code.

**Qualification Status:** We will prepare by 10/31/2022.

**Sample Availability Date:** 7/31/2022

ES samples will be provided for functionality check where there is no functionality difference between ES sample and MP version.

**Device Material Declaration:** Contact Renesas sales, distributor, or agency.

## Note:

1. Acknowledgement must be received by Renesas within 30 days or Renesas will consider the change as approved.
2. If timely acknowledgement is provided by Customer, then Customer shall have 90 days from the date of receipt of this PCN to make any objections to this PCN. If Customer fails to make objections to this PCN within 90 days of the receipt of the PCN then Renesas will consider the PCN changes as approved.
3. If customer cannot accept the PCN then customer must provide Renesas with a last time buy demand and purchase order.

**For additional information regarding this notice, please contact your Renesas sales representative.**

P/N	With Saijo addition
R5F10277ANA#05	✓
R5F10277ANA#25	✓
R5F10277ANA#45	✓
R5F10277GNA#05	
R5F10277GNA#25	
R5F10277GNA#45	
R5F10278ANA#05	✓
R5F10278ANA#25	✓
R5F10278ANA#45	✓
R5F10278GNA#05	
R5F10278GNA#25	
R5F10278GNA#45	
R5F10279ANA#05	✓
R5F10279ANA#25	✓
R5F10279ANA#45	✓
R5F10279GNA#05	
R5F10279GNA#25	
R5F10279GNA#45	
R5F1027AANA#05	✓
R5F1027AANA#25	✓
R5F1027AANA#45	✓
R5F1027AGNA#05	
R5F1027AGNA#25	
R5F1027AGNA#45	
R5F10377ANA#05	✓
R5F10377ANA#25	✓
R5F10377ANA#45	✓
R5F10378ANA#05	✓
R5F10378ANA#25	✓
R5F10378ANA#45	✓
R5F10379ANA#05	✓
R5F10379ANA#25	✓
R5F10379ANA#45	✓
R5F1037AANA#05	✓
R5F1037AANA#25	✓
R5F1037AANA#45	✓
R5F1007AANA#00	✓
R5F1007AANA#20	✓
R5F1007AANA#40	✓
R5F1007AGNA#00	
R5F1007AGNA#20	
R5F1007AGNA#40	
R5F1007CANA#00	✓
R5F1007CANA#20	✓
R5F1007CANA#40	✓
R5F1007CGNA#00	
R5F1007CGNA#20	
R5F1007CGNA#40	

P/N	With Saijo addition
R5F1007DANA#00	✓
R5F1007DANA#20	✓
R5F1007DANA#40	✓
R5F1007DGNA#00	
R5F1007DGNA#20	
R5F1007DGNA#40	
R5F1007EANA#00	✓
R5F1007EANA#20	✓
R5F1007EANA#40	✓
R5F1007EGNA#00	
R5F1007EGNA#20	
R5F1007EGNA#40	
R5F1017AANA#00	✓
R5F1017AANA#20	✓
R5F1017AANA#40	✓
R5F1017CANA#00	✓
R5F1017CANA#20	✓
R5F1017CANA#40	✓
R5F1017DANA#00	✓
R5F1017DANA#20	✓
R5F1017DANA#40	✓
R5F1017EANA#00	✓
R5F1017EANA#20	✓
R5F1017EANA#40	✓
R5F100BAANA#00	✓
R5F100BAANA#20	✓
R5F100BAANA#40	✓
R5F100BAGNA#00	
R5F100BAGNA#20	
R5F100BAGNA#40	
R5F100BCANA#00	✓
R5F100BCANA#20	✓
R5F100BCANA#40	✓
R5F100BCGNA#00	
R5F100BCGNA#20	
R5F100BCGNA#40	
R5F100BDANA#00	✓
R5F100BDANA#20	✓
R5F100BDANA#40	✓
R5F100BDGNA#00	
R5F100BDGNA#20	
R5F100BDGNA#40	
R5F100BEANA#00	✓
R5F100BEANA#20	✓
R5F100BEANA#40	✓
R5F100BEGNA#00	
R5F100BEGNA#20	
R5F100BEGNA#40	

P/N	With Saijo addition
R5F101BAANA#00	✓
R5F101BAANA#20	✓
R5F101BAANA#40	✓
R5F101BCANA#00	✓
R5F101BCANA#20	✓
R5F101BCANA#40	✓
R5F101BDANA#00	✓
R5F101BDANA#20	✓
R5F101BDANA#40	✓
R5F101BEANA#00	✓
R5F101BEANA#20	✓
R5F101BEANA#40	✓
R5F10277AA00NA#45	✓
R5F10278A100NA#25	✓
R5F10278A101NA#45	✓
R5F10278AB00NA#45	✓
R5F10279AA02NA#25	✓
R5F1027AAA00NA#25	✓
R5F1027AAA00NA#45	✓
R5F1027AAA03NA#25	✓
R5F1027AAA04NA#25	✓
R5F1027AAB00NA#45	✓
R5F1027AAB01NA#25	✓
R5F1027AG350NA#25	
R5F1027AGG50NA#45	
R5F1027AGG51NA#45	
R5F10378AB00NA#25	✓
R5F1007AAA00NA#40	✓
R5F1007AAA04NA#40	✓
R5F1007AAA05NA#40	✓
R5F1007CAA00NA#40	✓
R5F1007CG300NA#20	
R5F1007EG300NA#20	
R5F1017AAA00NA#20	✓
R5F1017AAA01NA#40	✓
R5F1017AAA02NA#40	✓
R5F1017AAA03NA#20	✓
R5F1017AAA04NA#20	✓
R5F100BAGG00NA#40	
R5F100BAGG01NA#40	
R5F100BAGG02NA#40	
R5F100BAGG03NA#40	
R5F100BAGG04NA#40	
R5F100BCAA00NA#40	✓
R5F100BCGG00NA#40	
R5F100BCGG01NA#40	
R5F100BEG300NA#20	
R5F101BCAA00NA#40	✓

**Difference of specification  
(RL78 family HWQFN products)  
4x4mm 0.5mm pitch 24pin  
5x5mm 0.5mm pitch 32pin**

**Assembly factory: UTAC    Sorting factory : UTAC**

JUNE. 22. 2022

MCU PRODUCT MARKETING DEPARTMENT  
MCU DEVICE SOLUTION BUSINESS DIVISION  
IOT AND INFRASTRUCTURE BUSINESS UNIT  
RENESAS ELECTRONICS CORPORATION

Rev. 1.0

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MCP-AB-22-0065

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(Rev. 5.0-1 October 2020)

# DIFFERENCE OUTLINE

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- Target package:
  - 4x4mm 0.5mm pitch 24pin HWQFN
  - 5x5mm 0.5mm pitch 32pin HWQFN
  
- Difference points
  1. Assembly factory
    - Existing factory: Greatek Electronics Inc. (Greatek)
    - Additional factory: UTAC Thai Limited (UTAC)
  2. Sorting factory
    - Existing factory: King Yuan Electronics Co., Ltd (KYEC)
    - Additional factory: UTAC Thai Limited (UTAC)
  3. Wafer process
    - Existing factory: Renesas Semiconductor Manufacturing Kawashiri
    - Additional factory: Renesas Semiconductor Manufacturing Saijo

# DIFFERENCE OUTLINE

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## 4. Assembly material

Lead frame, Die mount paste and Mold resin are used certificated materials.

## 5. Package outline

There is no change in foot pattern for additional factory products.

Please refer to the package outline drawing and dimension comparison for the external dimensions.

## 6. Marking

Change the marking font.

## 7. Packing

With the addition of factory, packing method also be added.

The packing material used certificated materials.

# DIFFERENCE OUTLINE

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8. Storage condition after opening:

There is no change.

: Within 30°C/ 60%RH/ 168h (JEDEC compliant)

9. Specification and characteristics of product:

No impact

10. Quality and reliability:

No impact

# Difference of specification

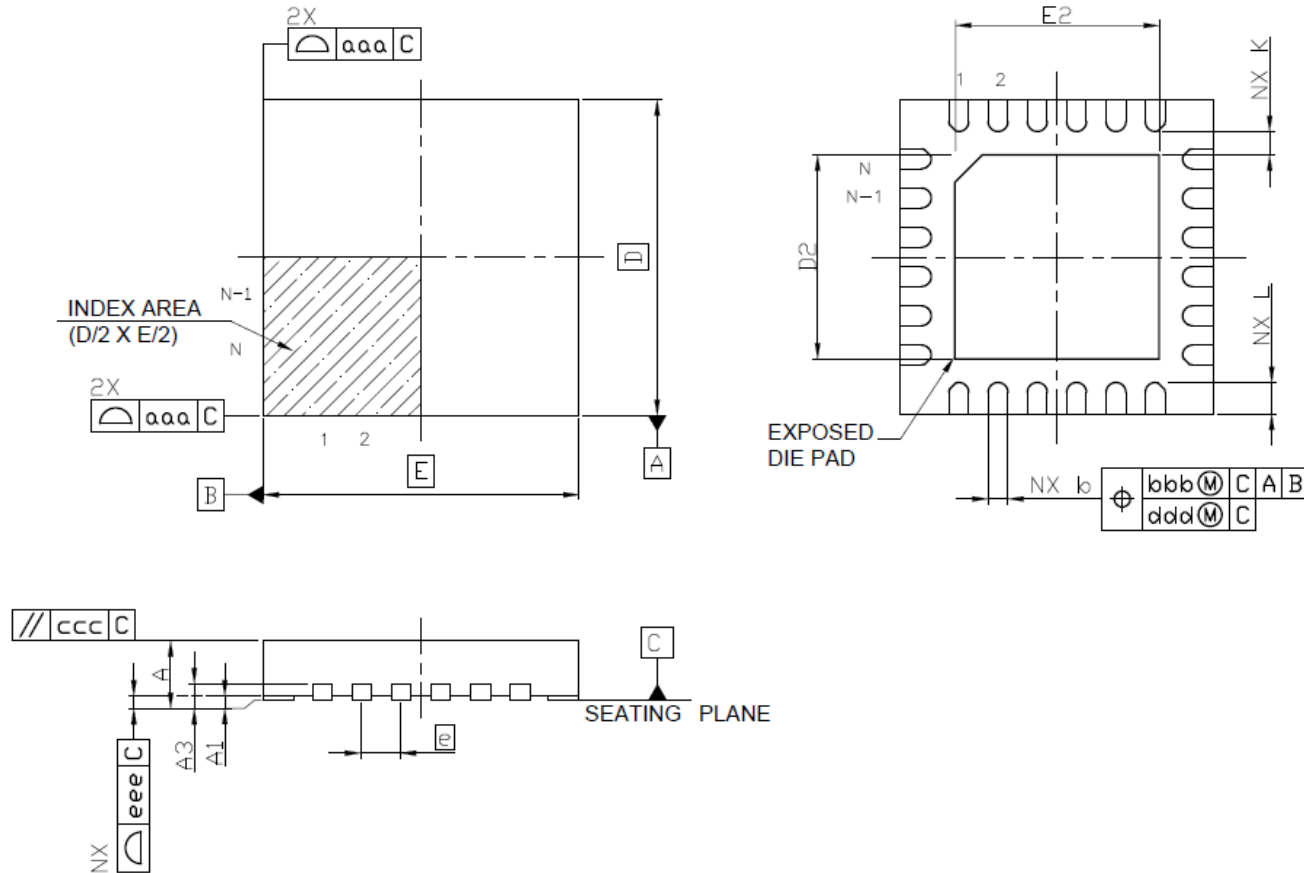
Item		Additional factory	Existing factory
Wafer process		Kawashiri/Saijo	Kawashiri
Assembly factory		UTAC	Greatek
Sorting factory		UTAC	KYEC
Package	Outline	There are differences (Refer to pages 7 to 15)	
Lead frame	Material	No difference	
	Inner pattern	No difference	
Die mount	Material	Ag epoxy paste B *	Ag epoxy paste A *
Bonding wire	Material	No difference; Cu (Pd coating)	
Resin	Material	Epoxy resin B * (halogen-free)	Epoxy resin A * (halogen-free)
Plating	Material	No difference	
Marking	Font	There are differences (Refer to pages 16)	
	Digit number	No difference	
Packing	Tray/ Emboss tape	There are additions (Refer to pages 17 to 25)	
Storage conditions	after opening	Within 30°C/ 60%RH/ 168h (JEDEC compliant)	

\* Factory certified materials.

There are differences in materials, but there is no impact in reliability or characteristics.

# 4x4mm 24pin 0.5mm pitch HWQFN package outline (UTAC)

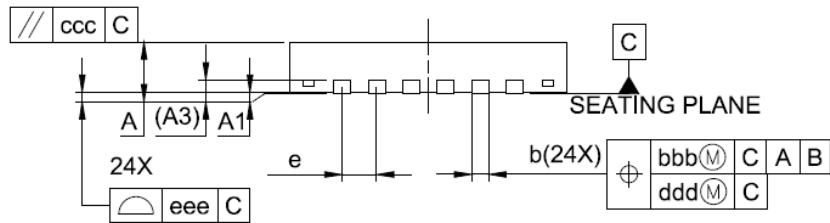
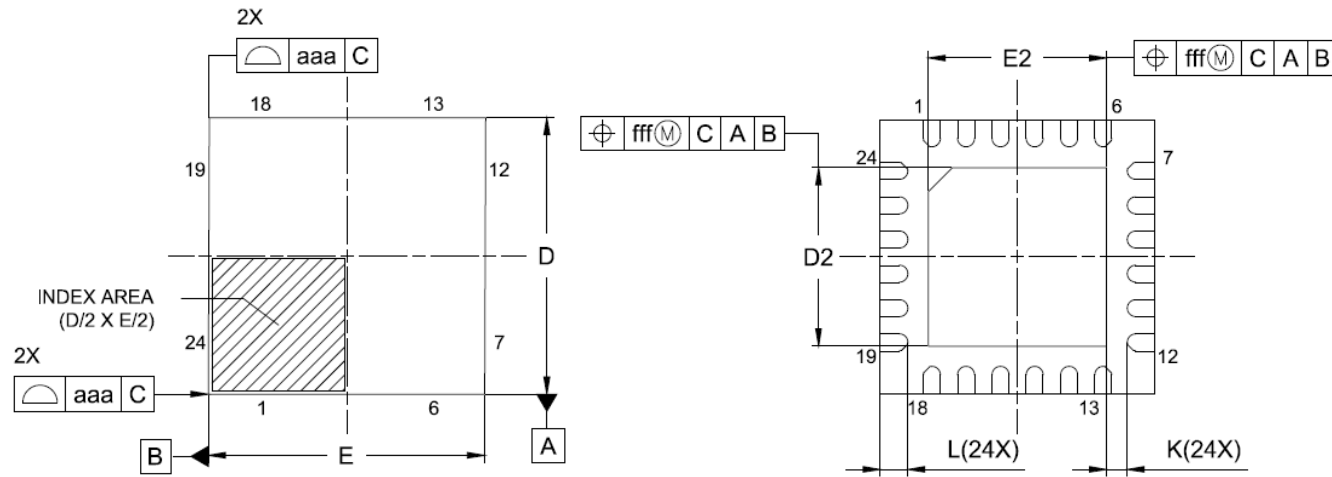
RENESAS Code : PWQN0024KH-A



UTAC Symbol	4x4mm 24pin HWQFN PWQN0024KH-A		
	Dimension in Millimeters		
	Min	Nom	Max
A	-	-	0.80
A1	0.00	-	0.05
A3	0.20 REF.		
b	0.20	0.25	0.30
D	-	4.00	-
E	-	4.00	-
e	-	0.50	-
N	24		
L	0.30	0.40	0.50
K	0.20	-	-
D2	2.50	2.60	2.70
E2	2.50	2.60	2.70
aaa	-	-	0.15
bbb	-	-	0.10
ccc	-	-	0.10
ddd	-	-	0.05
eee	-	-	0.08

# 4x4mm 24pin 0.5mm pitch HWQFN package outline (Greatek)

RENESAS Code : PWQN0024KF-A



Greatek Symbol	4x4mm 24pin HWQFN PWQN0024KF-A		
	Dimension in Millimeters		
	Min	Nom	Max
A	-	-	0.80
A1	0.00	0.02	0.05
A3	0.203 REF.		
b	0.18	0.25	0.30
D	4.00 BSC		
E	4.00 BSC		
e	0.50 BSC		
L	0.35	0.40	0.45
K	0.20	-	-
D2	2.55	2.60	2.65
E2	2.55	2.60	2.65
aaa	0.15		
bbb	0.10		
ccc	0.10		
ddd	0.05		
eee	0.08		
fff	0.10		

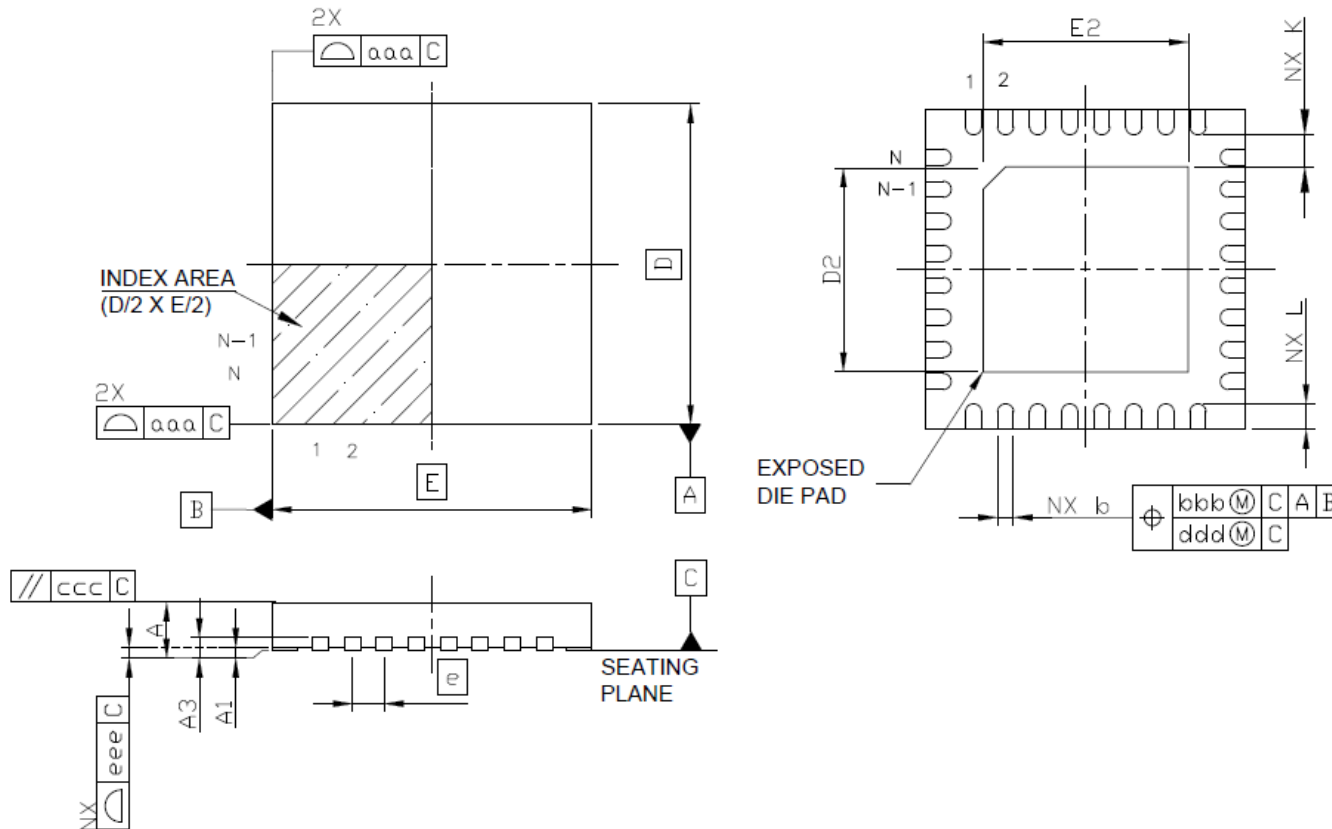
# Dimension comparison: 4x4mm 0.5mm pitch 24pin HWQFN

Symbols complied JEDEC standard.

UTAC Symbol	4x4mm 24pin HWQFN PWQN0024KH-A			Greatek Symbol	4x4mm 24pin HWQFN PWQN0024KF-A		
	Dimension in Millimeters				Dimension in Millimeters		
	Min	Nom	Max		Min	Nom	Max
A	-	-	0.80	A	-	-	0.80
A1	0.00	-	0.05	A1	0.00	0.02	0.05
A3	0.20 REF.			A3	0.203 REF.		
b	0.20	0.25	0.30	b	0.18	0.25	0.30
D	-	4.00	-	D	4.00 BSC		
E	-	4.00	-	E	4.00 BSC		
e	-	0.50	-	e	0.50 BSC		
N	24			-	-	-	-
L	0.30	0.40	0.50	L	0.35	0.40	0.45
K	0.20	-	-	K	0.20	-	-
D2	2.50	2.60	2.70	D2	2.55	2.60	2.65
E2	2.50	2.60	2.70	E2	2.55	2.60	2.65
aaa	-	-	0.15	aaa	0.15		
bbb	-	-	0.10	bbb	0.10		
ccc	-	-	0.10	ccc	0.10		
ddd	-	-	0.05	ddd	0.05		
eee	-	-	0.08	eee	0.08		
-	-	-	-	fff	0.10		

# 5x5mm 32pin 0.5mm pitch HWQFN package outline (UTAC)

RENESAS Code : PWQN0032KG-A



UTAC Symbol	5x5mm 32pin HWQFN PWQN0032KG-A		
	Dimension in Millimeters		
	Min	Nom	Max
A	-	-	0.80
A1	0.00	-	0.05
A3	0.20 REF.		
B	0.20	0.25	0.30
D	-	5.00	-
E	-	5.00	-
e	-	0.50	-
N	32		
L	0.30	0.40	0.50
K	0.20	-	-
D2	3.10	3.20	3.30
E2	3.10	3.20	3.30
aaa	-	-	0.15
bbb	-	-	0.10
ccc	-	-	0.10
ddd	-	-	0.05
eee	-	-	0.08




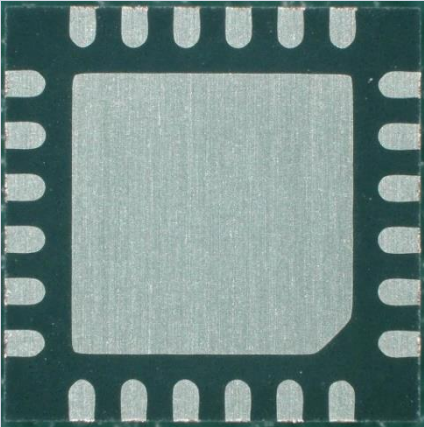
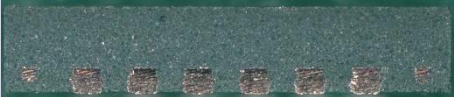

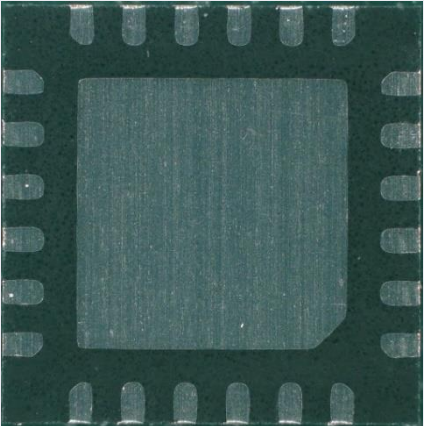

# Dimension comparison: 5x5mm 0.5 pitch 32pin HWQFN

Symbols complied JEDEC standard.

UTAC Symbol	5x5mm 32pin HWQFN PWQN0032KG-A			Greatek Symbol	5x5mm 32pin HWQFN PWQN0032KE-A		
	Dimension in Millimeters				Dimension in Millimeters		
	Min	Nom	Max		Min	Nom	Max
A	-	-	0.80	A	-	-	0.80
A1	0.00	-	0.05	A1	0.00	0.02	0.05
A3	0.20 REF.			A3	0.203 REF.		
B	0.20	0.25	0.30	b	0.18	0.25	0.30
D	-	5.00	-	D	5.00 BSC		
E	-	5.00	-	E	5.00 BSC		
e	-	0.50	-	e	0.50 BSC		
N	32			N	-	-	-
L	0.30	0.40	0.50	L	0.35	0.40	0.45
K	0.20	-	-	K	0.20	-	-
D2	3.10	3.20	3.30	D2	3.15	3.20	3.25
E2	3.10	3.20	3.30	E2	3.15	3.20	3.25
aaa	-	-	0.15	aaa	0.15		
bbb	-	-	0.10	bbb	0.10		
ccc	-	-	0.10	ccc	0.10		
ddd	-	-	0.05	ddd	0.05		
eee	-	-	0.08	eee	0.08		
-	-	-	-	fff	0.10		

# Marking visibility


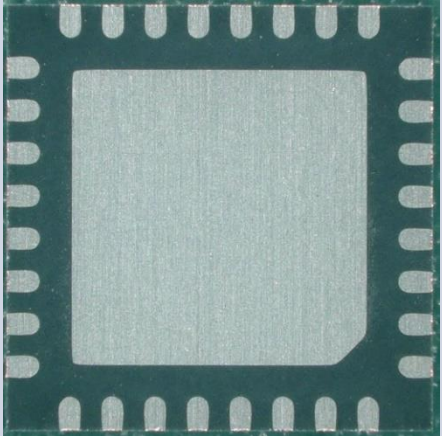


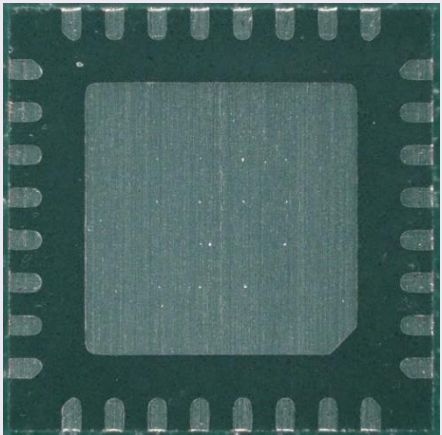

※Example of 4x4mm 24pin  
Character is reference example

	Package surface	Package back	Package side
UTAC  Additional factory			
Greatek  Existing Factory			

\*Actual colors may be different from ones in the photo.

# Marking visibility

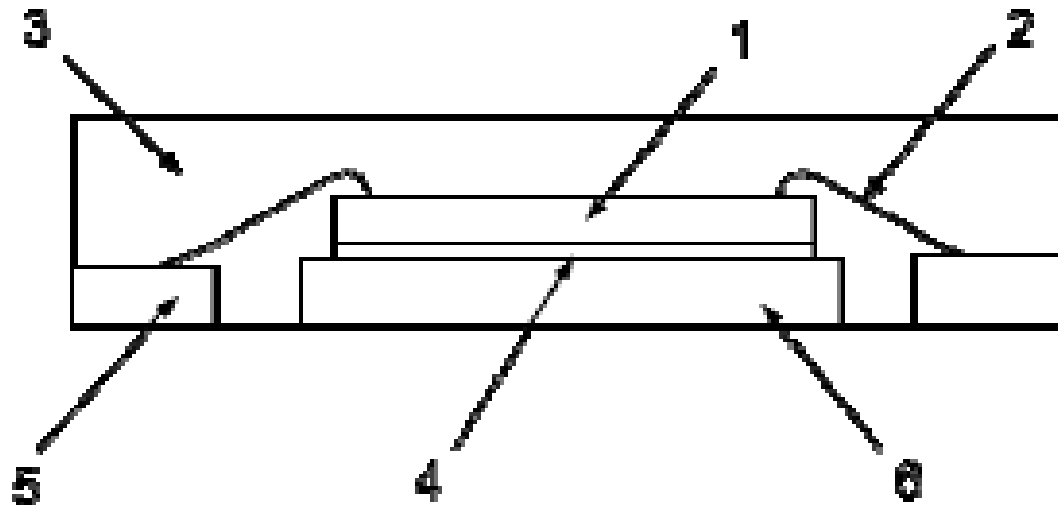
※Example of 5x5mm 32pin  
Character is reference example

	Package surface	Package back	Package side
UTAC  Additional factory			
Greatek  Existing Factory			

\*Actual colors may be different from ones in the photo.

# Package structure image

\* Package Section and die pad shape is a reference example.



No.	部材 Part
1	チップ Die
2	ワイヤ Wire
3	封止材 Molding material
4	ダイアタッチ材 Die attach material
5	Cu リード: Ni/Pd/Au めっき Cu lead: Ni/Pd/Au plating
6	ダイパッド Die pad

\*The materials are different because they use materials certified at the site, but the structure is equivalent.

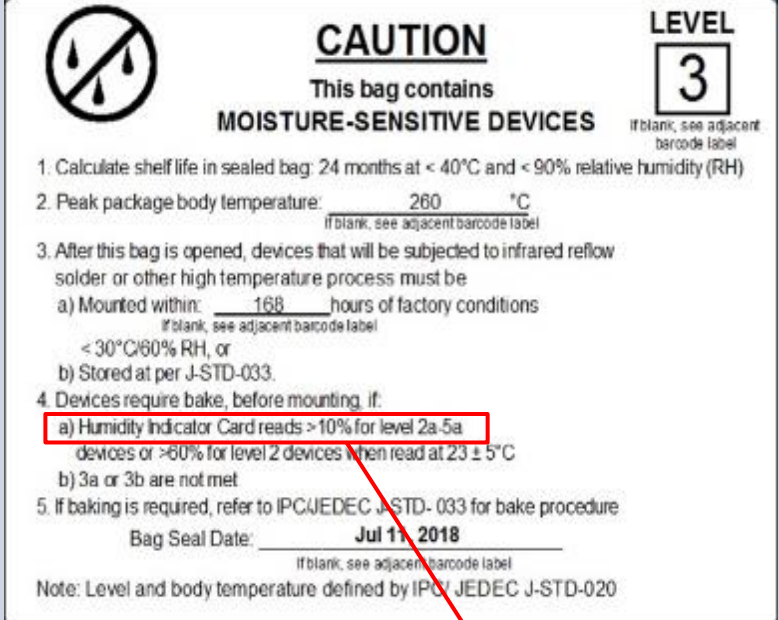
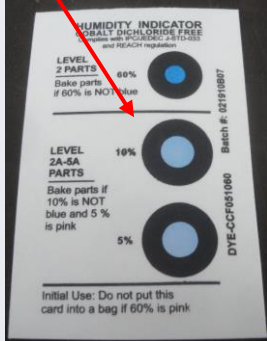

# Laser visibility

※Character is reference example

Assembly	UTAC (Additional factory)	Greatek (Existing Factory)
Whole Photo		
Detail Photo		

\*Actual colors may be different from ones in the photo.

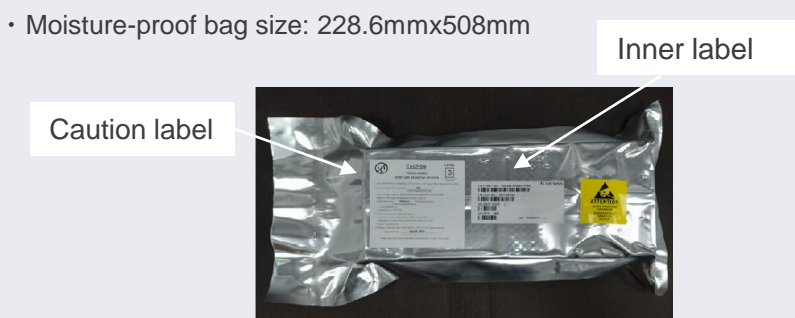
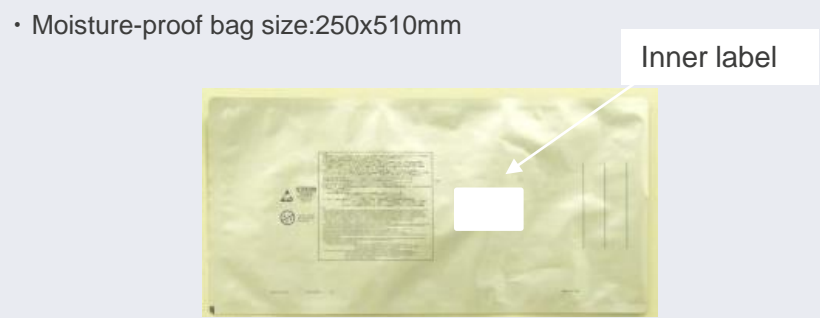


# Moisture-proof bag printing / humidity indicator card (Tray / T&R common)

Assembly	Additional packing specification	Existing packing specification
<p>Moisture-proof bag printing</p>	<p>• Caution label</p> 	<p>• Printed on a moisture-proof bag</p> <p>1. After opening the moisture-resistant bag, store the devices at a temperature of 5 °C to 30 °C and a relative humidity (RH) of 70% or below. Ensure that the devices are mounted within the maximum storage life (MSL) period indicated on the label of the inner package. If there is no MSL indication on the label, mount the devices within 168 hours.          Notation example 1) MSL3→2:1 year, 2a:4 weeks, 3:168 hours, 4:72 hours, 5a:24 hours          Notation example 2) MSL12H→H: hour, D: day, W: week, M: month, Y: year</p> <p>2. If a humidity indicator card (HIC) is packed together with the devices and the 30% indication has changed to lavender (pink), or if the devices have been stored longer than the limit specified in item 1 above, perform baking at 125 °C for 24 hours. Note that any special instructions on the inner label should be followed.</p> <p>REL standard moisture-proof bag [RBG01AA-2350, RBG05AB-3949] Precautionary statement excerpt</p>
<p>Humidity indicator card</p>	<p>• 3-point type (5%, 10%, 60%) JEDEC specifications</p> 	<p>• 4-point type (10%, 20%, 30%, 40%) REL standard specifications</p> 

# Shipping packing (Tray shipping)

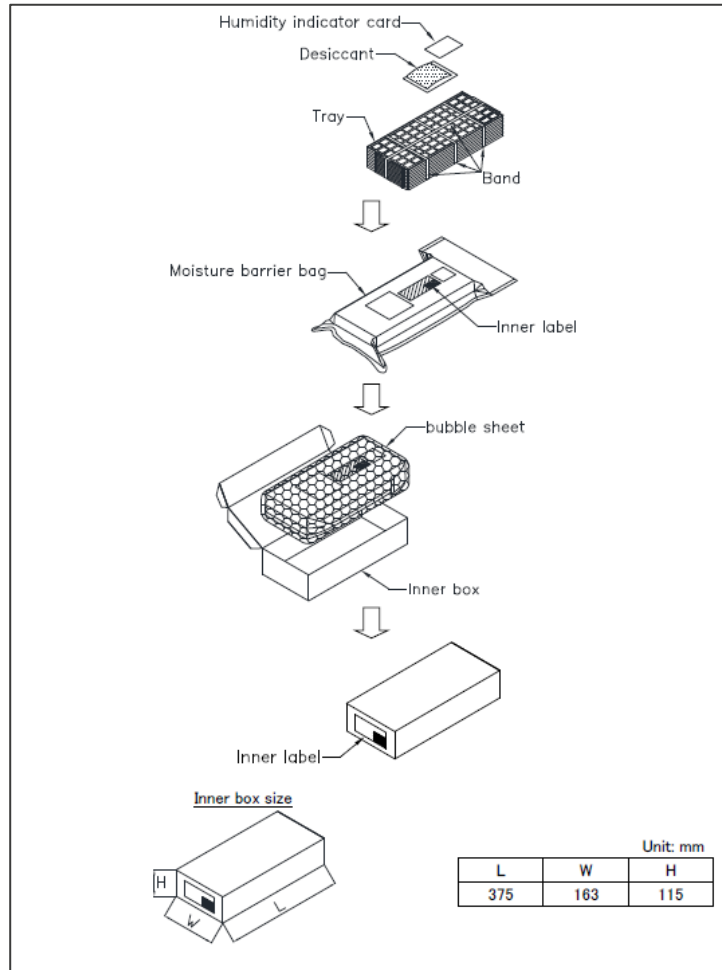
Packing material	Tray packing materials	
	Additional packing specification	Existing packing specification
Number of storages in the inner box  Binding bands	<ul style="list-style-type: none"> <li>Number of storage: 8 trays + 1 cover tray</li> <li>Binding bands: 3 short sides + 1 long side</li> </ul> 	<ul style="list-style-type: none"> <li>Number of storage: 8 trays + 1 cover tray</li> <li>Binding bands: 3 short sides</li> </ul> 
Desiccant	<ul style="list-style-type: none"> <li>•33g</li> </ul> 	<ul style="list-style-type: none"> <li>•25g+25g</li> </ul> 

# Shipping packing (Tray shipping)

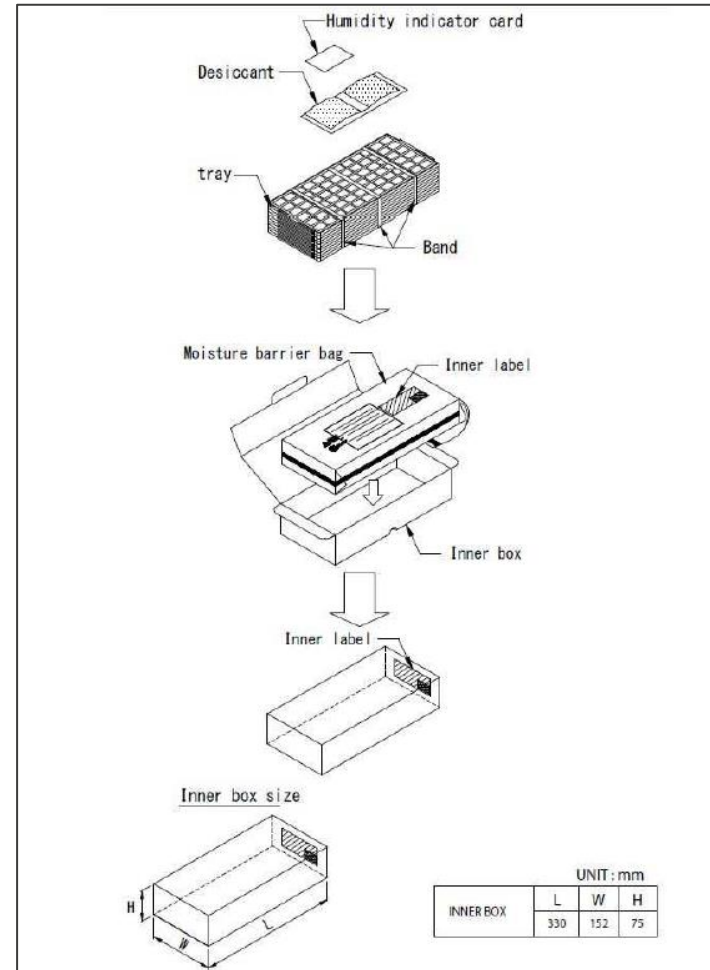
Packing material	Tray packing materials	
	Additional packing specifications	Existing packing specification
Moisture-proof bag * Refer to page 16 for printed contents.	<ul style="list-style-type: none"> <li>Moisture-proof bag size: 228.6mmx508mm</li> </ul> 	<ul style="list-style-type: none"> <li>Moisture-proof bag size: 250x510mm</li> </ul> 
Inner box	<ul style="list-style-type: none"> <li>Inner box size: 163x375x115mm</li> </ul> 	<ul style="list-style-type: none"> <li>Inner box size: 152x330x75mm</li> </ul> 

# SHIPPING PACKING DIAGRAM (TRAY SHIPPING)

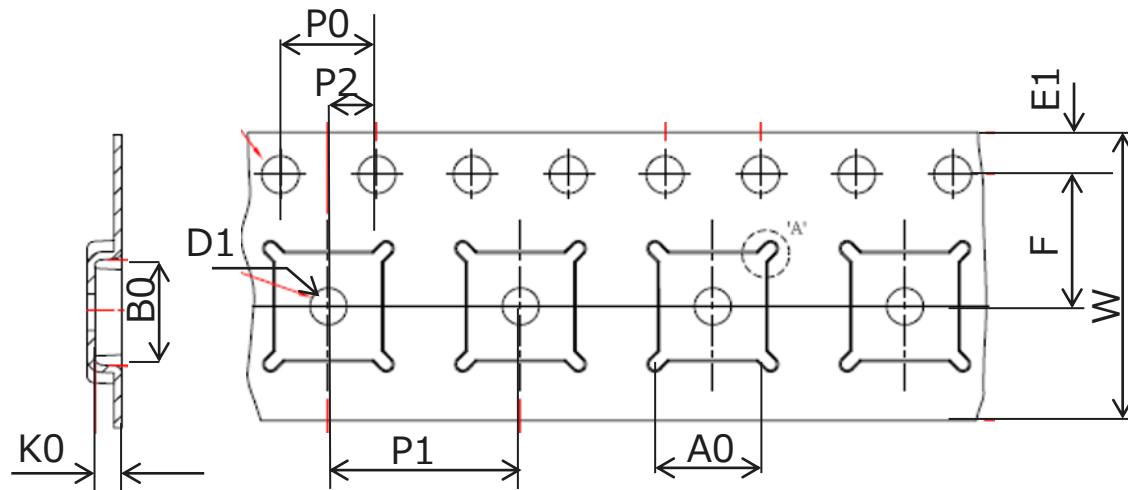
## Additional packing specification



## Existing packing specification

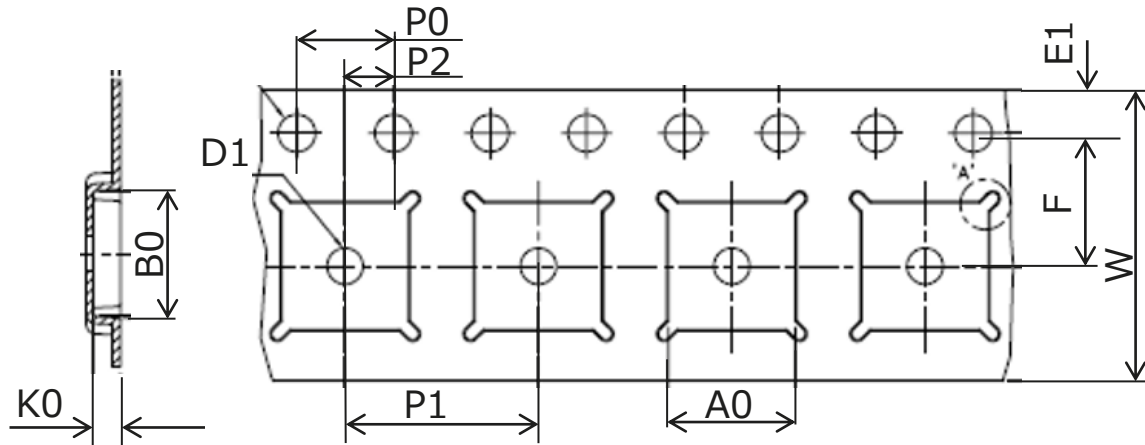


# 4x4mm 24pin HWQFN Embossed tape comparison



Tape dimensions		Additional	Existing
Pocket opening	A0	4.30	4.25
	B0	4.30	4.25
PKG sitting height	K0	1.10	1.10
Pocket pitch	P1	8.00	8.00
Tape width	W	12.00	12.00
Reference hole position	E1	1.75	1.75
Reference hole pitch	P0	4.00	4.00
	P2	2.00	2.00
From the reference hole to the pocket center	F	5.50	5.50
	P2	2.00	2.00
Pocket hole	D1	Φ1.50MIN	Φ1.60

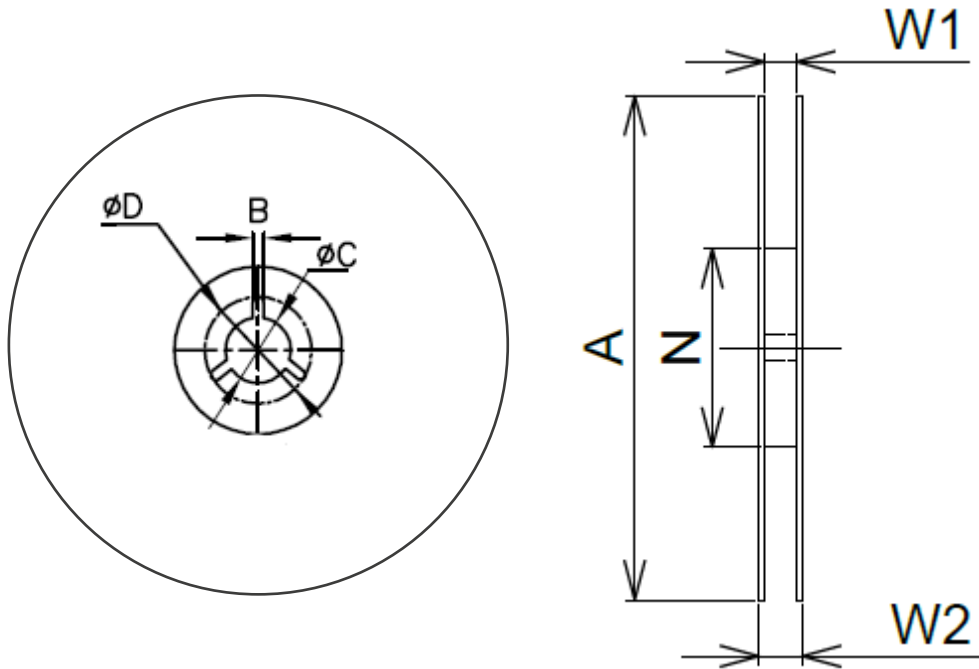
# 5x5mm 32pin HWQFN Embossed tape comparison



Tape dimensions		Additional	Existing
Pocket opening	A0	5.25	5.30
	B0	5.25	5.30
PKG sitting height	K0	1.10	1.10
Pocket pitch	P1	8.00	8.00
Tape width	W	12.00	12.00
Reference hole position	E1	1.75	1.75
Reference hole pitch	P0	4.00	4.00
	F	5.50	5.50
From the reference hole to the pocket center	P2	2.00	2.00
	D1	Φ1.50MIN	Φ1.60

# Reel comparison

## (Common to 4x4 24pin and 5x5 32pin HWQFN)



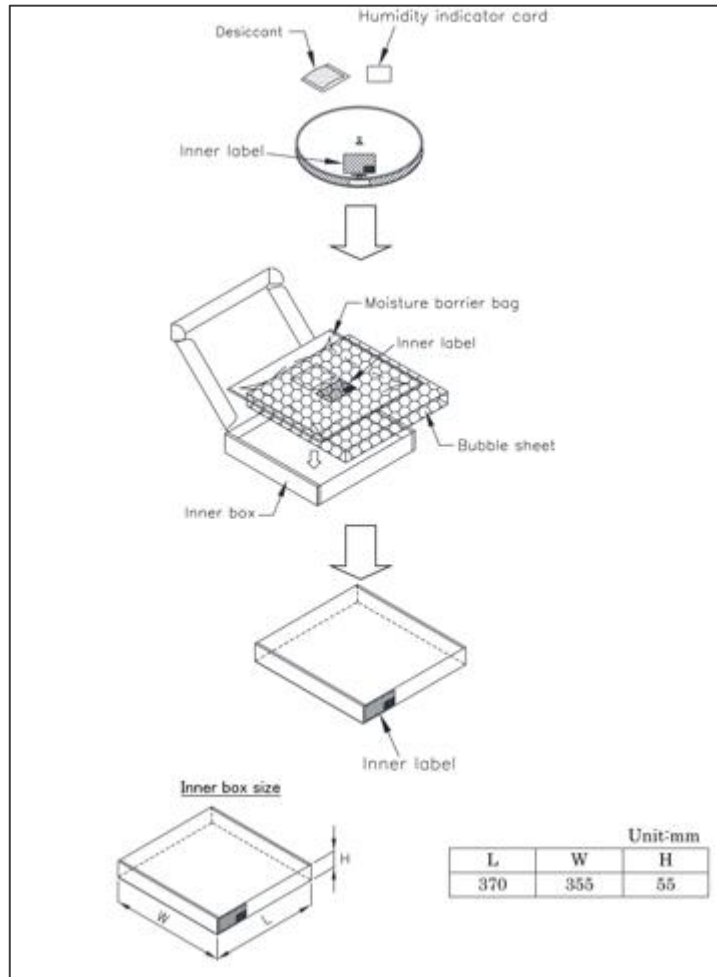
	Additional	Existing
B	1.5	2.0
$\phi C$	13.0	13.0
$\phi D$	20.2	21.0
A	330	330
N	100	102
W1	12.4	12.8
W2	18.4	18.4

# Shipping packing (T&R shipping)

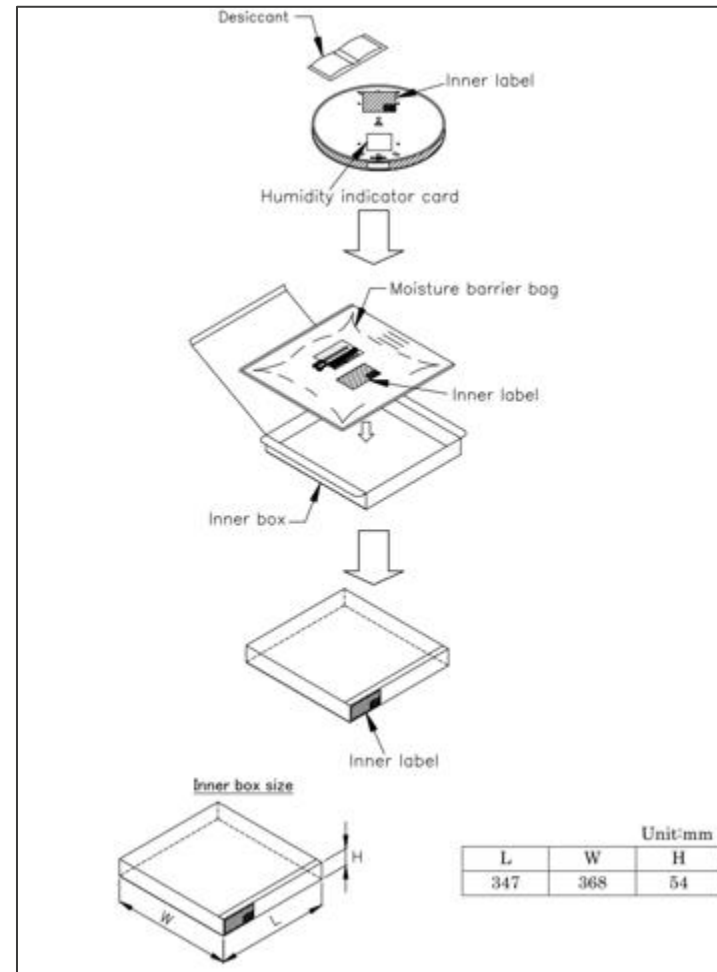
Packing material	T&R packing materials	
	Additional packing specification	Existing packing specification
Moisture-proof bag * Refer to page 16 for printed contents.	<ul style="list-style-type: none"> <li>Moisture-proof bag size: 406.4x457.2mm</li> </ul> 	<ul style="list-style-type: none"> <li>Moisture-proof bag size: 415x500mm</li> </ul> 
Inner box	<ul style="list-style-type: none"> <li>Inner box size: 370x355x55mm</li> </ul> 	<ul style="list-style-type: none"> <li>Inner box size: 347x368x54mm</li> </ul> 
Desiccant	<ul style="list-style-type: none"> <li>•33g</li> </ul> 	<ul style="list-style-type: none"> <li>•25g+25g</li> </ul> 

# SHIPPING PACKING DIAGRAM (T&R SHIPPING)

Additional packing specification



Existing packing specification



# 4M changing points

## (Addition of assembly and sorting factory , Change of material)

Item	Check Result	Judgement
<b>Machine</b>	<p>Changing at assembly and sorting. The machines are equivalent to present machines.</p> <p>There are production of similar products and we have already checked the additional products have no risk on the production.</p>	<b>No risk</b>
<b>Method</b>	The same as current products.	<b>No risk</b>
<b>Man</b>	Using operator certification system. Only certificated operator can work for the production.	<b>No risk</b>
<b>Material</b>	<p>Only use certificated materials.</p> <p>The products has been certificated by reliability test same as existing products and have no risk.</p>	<b>No risk</b>

# 4M changing points (Wafer process addition)

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Process transfer will be performed without change of the basic chip design (chip size, chip patterns).

Item	Check Result	Judgement
<b>Machine</b>	The machines are equivalent to current machines.	<b>No risk</b>
<b>Method</b>	The same as current products.	<b>No risk</b>
<b>Man</b>	Using operator certification system. Only certificated operator can work for the production.	<b>No risk</b>
<b>Material</b>	The same material is used.	<b>No risk</b>

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